SEQUENCE LISTING

<110> ZENECA LIMITED

<120> GST SEQUENCES FROM SOYBEAN AND THEIR USE IN THE
      PRODUCTION OF HERBICIDE RESISTANT PLANTS

<130> ZENECA CASE PPD50449/WO

<140>
<141>

<150> GB9922346.3
<151> 1999-09-21

<160> 43

<170> PatentIn Ver. 2.0

<210> 1
<211> 499
<212> PRT
<213> Glycine max

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Arg Ile Asp Gln Lys Leu Leu Gln Asn Ile Val Tyr Asp Ala Leu Val
         35   40   45

Trp Ser Thr Leu Asn Cys Leu Leu Val Gly Asp Lys Ser Val Gln Arg
     50   55   60

Ser Gly Arg Val Pro Gly Val Gly Leu Val His Leu Pro Leu Ser Leu
 65   70   75   80

Leu Pro Gly Pro Phe Pro Glu Ser His Trp Lys Gln Gly Cys Glu Leu
                 85   90   95

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Ala Pro Ile Phe Asn Glu Leu Val Asp Arg Val Ser Leu Asp Gly Lys
            100                 105                 110

Phe Leu Gln Glu Ser Leu Ser Arg Thr Lys Asn Ala Asp Glu Phe Thr
            115                 120                 125

Ser Arg Leu Leu Asp Ile His Ser Lys Met Leu Gln Ile Asn Lys Lys
            130                 135                 140

Glu Asp Ile Arg Met Gly Ile Val Arg Ser Asp Tyr Met Ile Asp Glu
145                 150                 155                 160

Lys Thr Lys Ser Leu Leu Gln Ile Glu Met Asn Thr Ile Ser Thr Ser
                165                 170                 175

Phe Ala Leu Ile Gly Cys Leu Met Thr Gly Leu His Lys Ser Leu Leu
                180                 185                 190

Ser Gln Tyr Gly Lys Phe Leu Gly Leu Asn Ser Asn Arg Val Pro Ala
                195                 200                 205

Asn Asn Ala Val Asp Gln Ser Ala Glu Ala Leu Ala Lys Ala Trp Ser
            210                 215                 220

Glu Tyr Asn Asn Pro Arg Ala Ala Ile Leu Val Val Val Gln Val Glu
225                 230                 235                 240

Glu Arg Asn Met Tyr Glu Gln His Tyr Ile Ser Ala Leu Leu Arg Glu
                245                 250                 255

Lys His His Ile Arg Ser Ile Arg Lys Thr Leu Thr Glu Ile Asp Gln
                260                 265                 270

Glu Gly Lys Ile Leu Pro Asp Gly Thr Leu Ser Val Asp Gly Gln Ala
            275                 280                 285

Ile Ser Val Val Tyr Phe Arg Ala Gly Tyr Thr Pro Lys Asp Tyr Pro
    290                 295                 300

Ser Glu Ser Glu Trp Arg Ala Arg Leu Leu Met Glu Gln Ser Ser Ala
305                 310                 315                 320

Ile Lys Cys Pro Thr Ile Ser Tyr His Leu Val Gly Thr Lys Lys Ile
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Gln Gln Glu Leu Ala Lys Pro Gly Val Leu Glu Arg Phe Val Glu Asn
            340                  345                  350

Lys Asp His Ile Ala Lys Leu Arg Ala Cys Phe Ala Gly Leu Trp Ser
            355                  360                  365

Leu Glu Asp Ser Asp Ile Val Lys Lys Ala Ile Glu Asn Pro Glu Leu
            370                  375              380

Phe Val Met Lys Pro Gln Arg Glu Gly Gly Gly Asn Asn Ile Tyr Gly
385                  390                  395                  400

Asp Glu Leu Arg Glu Thr Leu Leu Lys Leu Gln Glu Ala Gly Ser Gln
                405                  410                  415

Glu Asp Ala Ala Tyr Ile Leu Met Gln Arg Ile Phe Pro Ala Thr Ser
                420                  425                  430

Pro Ala Ile Leu Val Arg Asp Gly Asn Trp Asp Thr Gly His Val Ile
            435                  440                  445

Ser Glu Ala Gly Ile Phe Gly Thr Tyr Leu Arg Asn Lys Asp Lys Ile
            450                  455                  460

Ile Ile Asn Asn Glu Ser Gly Tyr Met Val Arg Thr Lys Ile Ser Ser
465                  470                  475                  480

Ser Tyr Glu Gly Gly Val Leu Pro Gly Phe Gly Val Val Asp Thr Val
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Tyr Leu Thr
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<210> 2
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Protein

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Fragment

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 1   5   10

<210> 3
<211> 8
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence:Protein
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Protein
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<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Protein
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<210> 6
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<212> DNA
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<400> 6

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<210> 7
<211> 222
<212> PRT
<213> Glycine max

<400> 7
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Pro Phe Leu His Arg Val Gln Ile Ala Leu Lys Leu Lys Gly Val Glu
            20   25   30

Tyr Lys Tyr Leu Glu Asp Asp Leu Asn Asn Lys Ser Asp Leu Leu Leu
        35   40   45

Lys Tyr Asn Pro Val Tyr Lys Met Ile Pro Val Leu Val His Asn Glu
    50   55   60

Lys Pro Ile Ser Glu Ser Leu Val Ile Val Glu Tyr Ile Asp Asp Thr
65   70   75   80

Trp Lys Asn Asn Pro Ile Leu Pro Ser Asp Pro Tyr Gln Arg Ala Leu
            85   90   95

Ala Arg Phe Trp Ala Lys Phe Ile Asp Asp Lys Cys Val Val Pro Ala
            100   105   110

Trp Lys Ser Ala Phe Met Thr Asp Glu Lys Glu Lys Glu Lys Ala Lys
        115   120   125

Glu Glu Leu Phe Glu Ala Leu Ser Phe Leu Glu Asn Glu Leu Lys Gly
    130   135   140

Lys Phe Phe Gly Gly Glu Glu Phe Gly Phe Val Asp Ile Ala Ala Val
145   150   155   160

Leu Ile Pro Ile Ile Gln Glu Ile Ala Gly Leu Gln Leu Phe Thr Ser
            165   170   175

Glu Lys Phe Pro Lys Leu Ser Lys Trp Ser Gln Asp Phe His Asn His
        180   185   190

```
Pro Val Val Asn Glu Val Met Pro Pro Lys Asp Gln Leu Phe Ala Tyr
    195                 200             205

Phe Lys Ala Arg Ala Gln Ser Phe Val Ala Lys Arg Lys Asn
    210             215             220


<210> 8
<211> 235
<212> PRT
<213> Glycine max

<400> 8
Met Ala Glu Gln Asp Lys Val Ile Leu His Gly Met Trp Ala Ser Pro
 1               5                  10                  15

Tyr Ala Lys Arg Val Glu Leu Ala Leu Asn Phe Lys Gly Ile Pro Tyr
             20                  25                  30

Glu Tyr Val Glu Glu Asp Leu Arg Asn Lys Ser Asp Leu Leu Leu Lys
         35                  40                  45

Tyr Asn Pro Val His Lys Lys Val Pro Val Leu Val His Asn Gly Lys
    50                  55                  60

Ala Ile Ala Glu Ser Met Val Ile Leu Glu Tyr Ile Asp Glu Thr Trp
65                  70                  75                  80

Lys Asp Gly Pro Lys Leu Leu Pro Ser Asp Ser Tyr Lys Arg Ala Gln
             85                  90                  95

Ala Arg Phe Trp Cys His Phe Ile Gln Asp Gln Leu Met Glu Ser Thr
            100                 105                 110

Phe Leu Val Val Lys Thr Asp Gly Glu Ala Gln Gln Lys Ala Ile Asp
        115                 120                 125

His Val Tyr Glu Lys Leu Lys Val Leu Glu Asp Gly Met Lys Thr Tyr
    130                 135                 140

Leu Gly Glu Gly Asn Ala Ile Ile Ser Gly Val Glu Asn Asn Phe Gly
145                 150                 155                 160
```

Ile Leu Asp Ile Val Phe Cys Ala Leu Tyr Gly Ala Tyr Lys Ala His
              165   170   175

Glu Glu Val Ile Gly Leu Lys Phe Ile Val Pro Glu Lys Phe Pro Val
              180   185   190

Leu Phe Ser Trp Leu Met Ala Ile Ala Glu Val Glu Ala Val Lys Ile
              195   200   205

Ala Thr Pro Pro His Glu Lys Thr Val Gly Ile Leu Gln Leu Phe Arg
      210   215   220

Leu Ser Ala Leu Lys Ser Ser Ser Ala Thr Glu
225   230   235

<210> 9
<211> 223
<212> PRT
<213> Glycine max

<400> 9
Met Ala Glu Val Lys Leu His Gly Phe Trp Tyr Ser Pro Tyr Thr Leu
  1   5   10   15

Arg Val Val Trp Thr Leu Lys Leu Lys Asp Ile Pro Tyr Gln Asn Ile
              20   25   30

Glu Glu Asp Arg Tyr Asn Lys Ser Leu Gln Leu Leu Glu Tyr Asn Pro
              35   40   45

Val Tyr Lys Lys Thr Pro Val Leu Val His Asn Gly Lys Pro Leu Cys
      50   55   60

Glu Ser Met Leu Ile Val Glu Tyr Ile Asp Glu Ile Trp Ala His Asn
65   70   75   80

Ser Leu Leu Pro Ala Asp Pro Tyr Glu Arg Ala Leu Ala Arg Phe Trp
              85   90   95

Val Lys Tyr Ala Asp Asp Asp Met Phe Ser Ala Val Ile Ala Phe Phe
              100   105   110

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Leu Ser Asn Asn Asp Glu Glu Arg Glu Lys Ser Ile Glu Lys Ile Trp
    115             120             125

Glu His Leu Arg Val Val Glu Asn Gln Cys Phe Gly Asp Gln Lys Lys
    130             135             140

Phe Phe Gly Gly Asp Ile Ile Asn Ile Met Asp Ile Ala Phe Gly Ser
145             150             155             160

Ile Phe Lys Ile Leu Val Val Ala Glu Asp Ile Leu Asp Ala Lys Val
            165             170             175

Leu Glu Asp Glu Lys Phe Pro His Leu His Ser Trp Tyr Asn Asn Phe
            180             185             190

Lys Asp Val Ala Val Ile Lys Glu Asn Leu Pro Asp His Glu Lys Met
            195             200             205

Val Ala Phe Ala Lys Phe Ile Arg Glu Lys Arg Leu Ala Cys Thr
    210             215             220
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<210> 10
<211> 232
<212> PRT
<213> Glycine max

<400> 10
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Ala Leu Arg Val Gln Ile Ala Leu Asn Leu Lys Gly Leu Asp Tyr Glu
                20             25             30

Val Val Glu Glu Thr Leu Asn Pro Lys Ser Glu Leu Leu Leu Lys Ser
            35             40             45

Asn Pro Val His Lys Lys Ile Pro Val Phe Phe His Gly Asp Lys Val
    50             55             60

Ile Cys Glu Ser Ala Ile Ile Val Glu Tyr Ile Asp Glu Val Trp Ser
 65             70             75             80
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Asn Asn Ala Leu Ser Ile Leu Pro Gln Asn Ala Tyr Asp Arg Ala Asn
                85   90   95

Ala Arg Phe Trp Val Ser Tyr Ile Asp Asp Lys Trp Leu Thr Ser Leu
            100   105   110

Lys Ser Val Leu Ala Thr Glu Asp Asp Glu Ala Lys Lys Leu His Phe
        115   120   125

Glu Gln Ala Glu Glu Val Leu Glu Lys Val Glu Glu Val Phe Asn Lys
    130   135   140

Cys Ser Glu Gly Lys Ala Tyr Phe Gly Gly Asp Thr Ile Gly Phe Val
145   150   155   160

Asp Ile Gly Phe Gly Ser Phe Leu Ser Phe Ile Arg Val Ser Glu Asn
            165   170   175

Met Asn Glu Arg Lys Leu Leu Asp Glu Thr Lys Tyr Pro Gly Leu Thr
            180   185   190

Leu Trp Ala Glu Thr Phe Ala Ala Asp Pro Ala Val Lys Gly Leu Leu
        195   200   205

Pro Glu Thr Glu Lys Leu Val Glu Phe Ala Lys Ile Leu Gln Leu Lys
    210   215   220

Trp Ala Ala Ala Ala Ala Ala Lys
225   230
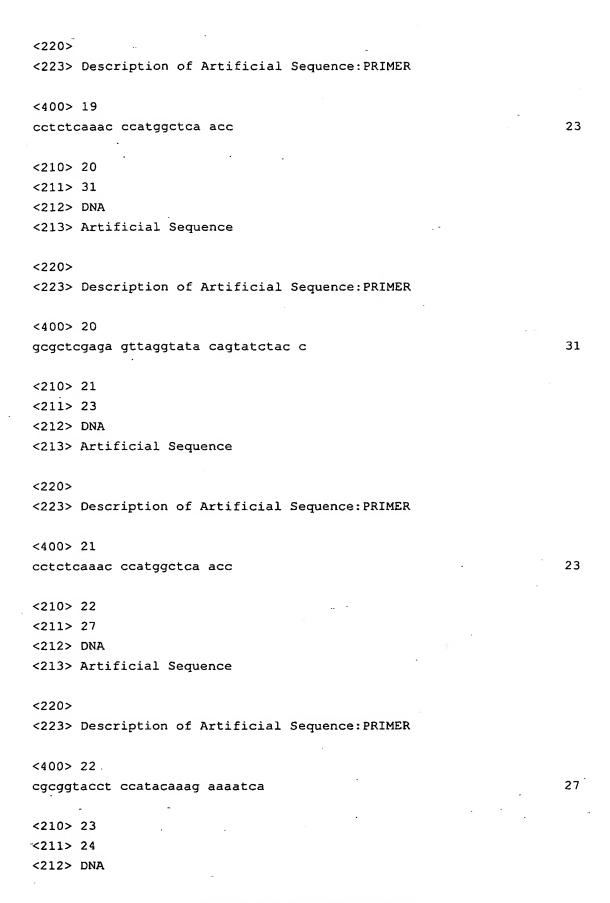

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<211> 885
<212> DNA
<213> Glycine max

<400> 11
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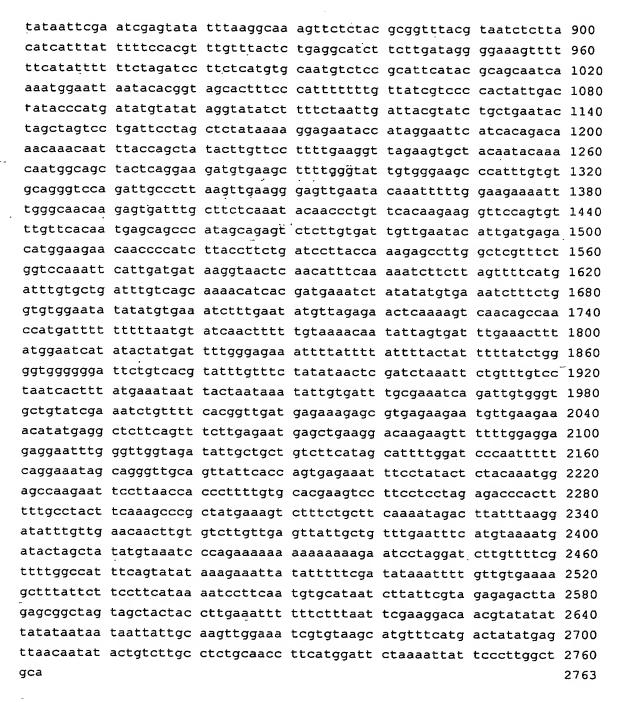tctgggctaa gttcattgat gacaagtgtg tggttccagc atggaaatct gcttttatga 360

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ctgtgttaat acctataatt caagagatag cagggttgca attgttcaca agtgagaaat 540
tcccaaagct ctctaaatgg agccaagact ttcacaacca tccagttgtc aacgaagtta 600
tgcctcctaa ggatcaactt tttgcctatt tcaaggctcg ggctcaaagc ttcgttgcta 660
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atgaaagcta cttgtctatg tttcgttatt gcggttgtat tttcattttt caatgaatta 780
tgtgatatag gatttctcca tgtcaaaaga tagttcaatt caatcaataa aataaacgaa 840
tgagtcgtgt tagagcaaaa aaaaaaaaaa aaaaaaaaaa aaaaa          885
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<210> 12
<211> 899
<212> DNA
<213> Glycine max
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aataagagtg atttgcttct aaagtacaac cctgttcaca agaaggttcc tgtacttgtt 180
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cagttgttca ggctgtctgc actgaaatct tcttctgcca cagaatgata tatacttcaa 720
cactttaata gactgtccat cgtttgcttc ttctgcgagt ctttaatgta tgtatctttc 780
aataacagga tgagtaacac ctgagtatgt aaagcgtgat gatatagaga tatacctcta 840
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<211> 840
<212> DNA
<213> Glycine max
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aaacccttat gtgagtccat gcttattgtt gaatacattg atgagatttg ggcacataat 240
tcattacttc ctgctgatcc ctacgagaga gctctggcaa ggttttgggt taaatatgct 300
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- 12 -

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<212> DNA
<213> Glycine max
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taaatggaat caaattaatt gctggatgaa tttcaaaaat tgttgtgcaa gttatttata 840
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<210> 15
<211> 26
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence:PRIMER
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<400> 15
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<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 16
cgcactgaga gaggatcctc gag   23

<210> 17
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<220>
<221> modified_base
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<400> 17
ttctgggykr astwcntyga cranaag   27

<210> 18
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 18
gagtcymwkg tsattgttga atacattgat gag   33

<210> 19
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 19
cctctcaaac ccatggctca acc   23

<210> 20
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 20
gcgctcgaga gttaggtata cagtatctac c   31

<210> 21
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 21
cctctcaaac ccatggctca acc   23

<210> 22
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 22
cgcggtacct ccatacaaag aaaatca   27

<210> 23
<211> 24
<212> DNA

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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 23
gagatctgca acaaacatag cctc                                    24


<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PRIMER

<400> 24
tacaccatgg ctgaaaggga cttg                                    24


<210> 25
<211> 2763
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:SOYBEAN Derived
      nucleic acid sequence P32110

<400> 25
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ctttaaataa aaaacattta aagtaaacta taataaaaat atatataaca tgttttaaat 180
aattaaacat taaaataaaa taataacata tcaaataaaa tcacaaaaaa tatactaatg 240
aaatcaactt aatattattt attatatatt taaatatata ttttttaact tttttatttt 300
aaaaaaataa aattgttaac attataaaat taaaaaacaa atttatgaaa aaaaaggtta 360
acaaattaaa aacaaactac aaatagtaaa ataacgtttt taaaaaaaaa aggaggttac 420
gatctcaaaa tcgtatacct catgaaattt ttaaaaaata agtaagacag ttttacaact 480
ttaaagtaat aaaacaaaat acgagttttt ttttaatacg actttaaagt cgtaaaaaaa 540
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gaaaatattt atataattac acaaaatctt aaaaaatgtt gttattattt actactaatt 840
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```
tataattcga atcgagtata tttaaggcaa agttctctac gcggtttacg taatctctta 900
catcatttat ttttccacgt ttgtttactc tgaggcatct tcttgatagg ggaaagtttt 960
ttcatatttt ttctagatcc ttctcatgtg caatgtctcc gcattcatac gcagcaatca 1020
aaatggaatt aatacacggt agcactttcc cattttttttg ttatcgtccc cactattgac 1080
tatacccatg atatgtatat aggtatatct tttctaattg attacgtatc tgctgaatac 1140
tagctagtcc tgattcctag ctctataaaa ggagaatacc ataggaattc atcacagaca 1200
aacaaacaat ttaccagcta tacttgttcc ttttgaaggt tagaagtgct acaatacaaa 1260
caatggcagc tactcaggaa gatgtgaagc ttttgggtat tgtgggaagc ccatttgtgt 1320
gcagggtcca gattgccctt aagttgaagg gagttgaata caaattttttg gaagaaaatt 1380
tgggcaacaa gagtgatttg cttctcaaat acaaccctgt tcacaagaag gttccagtgt 1440
ttgttcacaa tgagcagccc atagcagagt ctcttgtgat tgttgaatac attgatgaga 1500
catggaagaa caaccccatc ttaccttctg atccttacca aagagccttg gctcgtttct 1560
ggtccaaatt cattgatgat aaggtaactc aacatttcaa aaatcttctt agttttcatg 1620
atttgtgctg atttgtcagc aaaacatcac gatgaaatct atatatgtga aatctttctg 1680
gtgtggaata tatatgtgaa atctttgaat atgttagaga actcaaaagt caacagccaa 1740
ccatgatttt tttttaatgt atcaacttttt tgtaaaacaa tattagtgat ttgaaacttt 1800
atggaatcat atactatgat tttgggagaa attttatttt attttactat ttttatctgg 1860
ggtgggggga ttctgtcacg tatttgtttc tatataactc gatctaaatt ctgtttgtcc 1920
taatcacttt atgaaataat tactaataaa tattgtgatt tgcgaaatca gattgtgggt 1980
gctgtatcga aatctgtttt cacggttgat gagaaagagc gtgagaagaa tgttgaagaa 2040
acatatgagg ctcttcagtt tcttgagaat gagctgaagg acaagaagtt ttttggagga 2100
gaggaatttg ggttggtaga tattgctgct gtcttcatag cattttggat cccaattttt 2160
caggaaatag cagggttgca gttattcacc agtgagaaat ttcctatact ctacaaatgg 2220
agccaagaat tccttaacca ccctttttgtg cacgaagtcc ttcctcctag agacccactt 2280
tttgcctact tcaaagcccg ctatgaaagt ctttctgctt caaaatagac ttatttaagg 2340
atatttgttg aacaacttgt gtcttgttga gttattgctg tttgaatttc atgtaaaatg 2400
atactagcta tatgtaaatc ccagaaaaaa aaaaaaaga atcctaggat cttgttttcg 2460
ttttggccat ttcagtatat aaagaaatta tatttttcga tataaatttt gttgtgaaaa 2520
gctttattct tccttcataa aatccttcaa tgtgcataat cttattcgta gagagactta 2580
gagcggctag tagctactac cttgaaattt tttctttaat tcgaaggaca acgtatatat 2640
tatataataa taattattgc aagttggaaa tcgtgtaagc atgtttcatg actatatgag 2700
ttaacaatat actgtcttgc ctctgcaacc ttcatggatt ctaaaattat tcccttggct 2760
gca                                                               2763
```

```
<210> 26
<211> 1137
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Mungbean
      Sequence U20809
```

```
<400> 26
gaattaaagt gcttcgatgg gttcaagtca ggaagaagtg acccttctgg aattattgga 60
agcccatttg tttgcagggt gaagatagcc ctgaagttga agggagttga atacaaatac 120
gttgaagaaa atttccgcaa caagagtgaa cagcttctga aatacaaccc agttcacaag 180
aaggttccag tgtttgttca tggtgacaaa ccccttccag agtcccttgt gattgttgag 240
tacatcgatg agacatggaa caacaacccc atcttggctt ctgatcctta ccagagagcc 300
ttggctcgtt tctggtccaa attcatcgat gacaagattg tgggtgcttc gtggaaatct 360
gttttcacag ttgatgagaa agagcgtgag aagaatattg cagaaacata tgagagtctg 420
cagtttcttg agaatgagat aaaggagaag aagttctttg gaggagaaga gcttgggttg 480
gtagatattg ctgctgtcta tgtagcattt tggatccctt tgattcaaga aatagcagga 540
ttggagttat tgacaagtga gaaatttcct aatctctaca ggtggagcca agaatttttg 600
aaccatccaa ttgtcaaaga aagtcttccc cctagagacc cagttttttgc cttttttcaaa 660
ggacgctatg aaggcctttt ttcttcgaaa tagatttcat gttgtgagag atttagaatt 720
tataaggaaa attgtgtgga gtacttagtt aggatttggt ttcaaaatta tggttgaagt 780
tgaatcctag gatttgcgca tgtcaaacaa ataacctggg attgttcgtg ttgatatttt 840
actatttcaa tcaataaatt atgcagcttc ttaccgagtt aacattcgat cgaaataagg 900
accaacaaga ttaagtaagg ctgcattatt tgtcttttttg ttaaattaga tattagtatg 960
caccaaaaag tgagtatttc cttacagaag ctttttaaat attaagtagt taattccata 1020
ggtctaccat tatagctcaa gttatataca tattatgggt gccattctct actcaacaat 1080
tatgactata aaatcttgtg gttataatgc cacgaacaag tgaactatct cacttca 1137
```

```
<210> 27
<211> 2038
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Tobacco
      sequence Q03663

<400> 27
ctcgaggatt tcaaactcta gcttcactaa aacttgagct ttcttttcca ctaatgtcga 60
aaaacgaaat aaacataagc tatttacaaa aaataaaaaa atactccatt tgaatctaaa 120
gtcaagtcgt gattgggata agaaaataga aatttattta tactccagat caagccgtga 180
ttggaatgag ataatagaaa agtatgatag tacatgagta acatcaagtt ggaaattaag 240
ggaaggaaat tagagaaaga actgaagaat atccaaatat tctttacgtc caaatttgat 300
agttatttaa cgtcatcgag atgacggcca tgttcaagtt ttccacaaat attgagaaaa 360
gaaagaagaa gacacaaact gtgtttggta ttattatagt tttttctttt agagaattga 420
ttgtacatat aagaaatata atataagatt tagaaataag attattagaa aaatcaaaca 480
tcaaagtatt tatttttaaat tcttttttcca atggacattc ccattctgaa aaaaaagaga 540
tataaatatg gaagtaaaaa ttaatcagat cgttaaatgt agaaatatt aattaacaca 600
ttaaccataa ccagtctact ttatttaaca aaaagcacat ctgaratarc aaaaaagtgt 660
ttaacttcat gcattgacaa tttaaaatta ttttgcaaca tcgggtaaaa ctattttaca 720
```
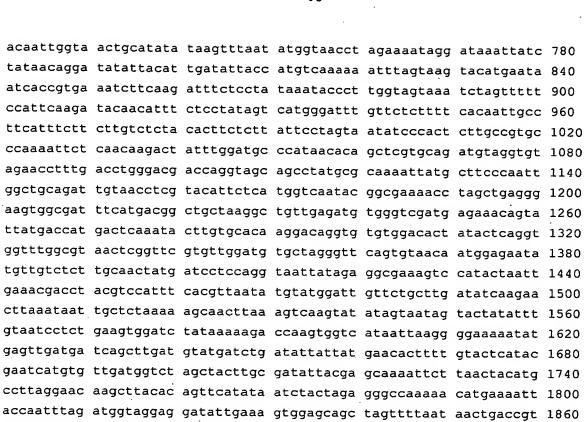
```
acaattggta actgcatata taagtttaat atggtaacct agaaaatagg ataaattatc 780
tataacagga tatattacat tgatattacc atgtcaaaaa atttagtaag tacatgaata 840
atcaccgtga aatcttcaag atttctccta taaataccct tggtagtaaa tctagttttt 900
ccattcaaga tacaacattt ctcctatagt catgggattt gttctctttt cacaattgcc 960
ttcatttctt cttgtctcta cacttctctt attcctagta atatcccact cttgccgtgc 1020
ccaaaattct caacaagact atttggatgc ccataacaca gctcgtgcag atgtaggtgt 1080
agaacctttg acctgggacg accaggtagc agcctatgcg caaaattatg cttcccaatt 1140
ggctgcagat tgtaacctcg tacattctca tggtcaatac ggcgaaaacc tagctgaggg 1200
aagtggcgat ttcatgacgg ctgctaaggc tgttgagatg tgggtcgatg agaaacagta 1260
ttatgaccat gactcaaata cttgtgcaca aggacaggtg tgtggacact atactcaggt 1320
ggtttggcgt aactcggttc gtgttggatg tgctagggtt cagtgtaaca atggagaata 1380
tgttgtctct tgcaactatg atcctccagg taattataga ggcgaaagtc catactaatt 1440
gaaacgacct acgtccattt cacgttaata tgtatggatt gttctgcttg atatcaagaa 1500
cttaaataat tgctctaaaa agcaacttaa agtcaagtat atagtaatag tactatattt 1560
gtaatcctct gaagtggatc tataaaaaga ccaagtggtc ataattaagg ggaaaaatat 1620
gagttgatga tcagcttgat gtatgatctg atattattat gaacactttt gtactcatac 1680
gaatcatgtg ttgatggtct agctacttgc gatattacga gcaaaattct taactacatg 1740
ccttaggaac aagcttacac agttcatata atctactaga gggccaaaaa catgaaaatt 1800
accaatttag atggtaggag gatattgaaa gtggagcagc tagttttaat aactgaccgt 1860
tagtcttaaa attgacggta taaaaatatt tacataatca ggtcatttat aaggtaatta 1920
taggtaaata tttatgacga attctcaata gtaatctgaa aaaaaattgt aactaaccta 1980
ttatactaaa actactataa taggttagat tacattaatc atgtcattag aagatctt    2038
```

<210> 28
<211> 2796
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Potato- Derived
      nucleic acid sequence P32111

<400> 28

```
aagcttacat tcaacgtgtt gctgcttcaa aataagggtc tttacaaaat ttaaaaaata 60
taaagaagaa ttttgaattt tataattaaa gccgtcagaa aggacttgac ctttgaagcc 120
aacccaactc aatattagaa aatcaaaaat tttagtgcat tcatttataa aaaaaaaaa 180
aattacttat gcagttcttg aaccctttgt gagacgagag ggagttgctc ggatggtaag 240
caccccttcac tttcaacccg aaggttgcga gtttgagtca ccaacggagc aaaaagggta 300
ggagctccta gaaagggtaa aaaaaaaaa aaaattaat aaaaaaatac cctttatgaa 360
atttctcatt ccgctactgc acttctcccc tgatcttcct cgtgttttca attattaatt 420
ctatattcat gacaccatgt gatgtttctc tgggtagtcc taaaaataga ggtattgaaa 480
attatgttgt ttctctctgg tctatttact tttcttgtgt actttattgt atttcatatt 540
gttaattttt ggcttcgttt tataacatgt tattagcaca aaactttaat catatcgagt 600
```

```
taaactttta attttgctta tcaacgtaaa agacaagata tgtgatcggc atgtataact 660
atgttttaat taggtataat acataaatat ttcctttaat tttatctcat tttatattta 720
tgtcgtttaa ctttggagcg tacaagtgtc tacttgtgat ccagtaggtt atcaaagctg 780
gcatgcttag ttttactttc caaattgaaa tttatattag aattgaattc aggaagaatt 840
ttgtaggttc aactaaatta tatatatata tataaaaaaa taaaaattat tagacgcttc 900
gactatttac ttactttaaa atttgaattt tcgtacgaat aaaattattt gtcagagaaa 960
agtcttttag ctattcacat gctaggaagt ttcacttttg gtggatcagt gattgtatat 1020
tatttaatat atatcaattt tctcatcaaa ctgaaatga aagataaaat taatattaaa 1080
aactccattc attttaattt attgtcatgt tttgacttga tccaaatct aacaatttaa 1140
aaggttttaa atttttgtgc ttttttttaa attaaaaata tgtcaaatat attaaaatat 1200
attttttaaa ttttatacta aaaaacatgt cacatgaata tttgaaatta taaaattatc 1260
aaaaataaaa aaagaatatt tctttaacaa attaaaaatg aaaatatgat aaataaatta 1320
aactattcta tcattgattt ttctagccac cagatttgac caaacagtgg gtgacatgag 1380
cacataagtc atctttattg tattttatta ctcactccaa aaatataggg aatatgttta 1440
ctacttaatt tagtcaaata taatttttata ttagaataat tgaatagtca aacaagaaac 1500
tttaatgcat ccttattttt tcctctataa aaaaaagact agacaccaag ggagaccaac 1560
cacacataat taagatggca gaagtgaagt tgcttggtct aaggtatagt ccttttagcc 1620
atagagttga atgggctcta aaaattaagg gagtgaaata tgaatttata gaggaagatt 1680
tacaaaataa gagcccttta cttcttcaat ctaatccaat tcacaagaaa attccagtgt 1740
taattcacaa tggcaagtgc atttgtgagt ctatggtcat tcttgaatac attgatgagg 1800
catttgaagg cccttccatt ttgcctaaag acccttatga tcgcgcttta gcacgatttt 1860
gggctaaata cgtcgaagat aaggtatatt gcttttaagt tattccaatt gattgaaaag 1920
tttgttttag ttacgttatt acatatactt taggtctcat gcttttttaat aatctttat 1980
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gatagttgat ttggagataa attattcgtg tataaaatta atatgatatt tgatttgcaa 2160
tttagaaata cataactatt ttatatgcat agatccatta taactaattg atatattatt 2220
aatatctgta taactctaac cagctatcga aacgagtcaa cgaaccttat taagttttgt 2280
ttgttgggca gggggcagca gtgtggaaaa gtttcttttc gaaaggagag gaacaagaga 2340
aagctaaaga ggaagcttat gagatgttga aaattcttga taatgagttc aaggacaaga 2400
agtgctttgt tggtgacaaa tttggatttg ctgatattgt tgcaaatggt gcagcacttt 2460
atttgggaat tcttgaagaa gtatctggaa ttgttttggc aacaagtgaa aaatttccaa 2520
atttttgtgc ttggagagat gaatattgca cacaaaacga ggaatatttt ccttcaagag 2580
atgaattgct tatccgttac cgagcctaca ttcagcctgt tgatgcttca aaatgagtat 2640
acctcaagtg aatttcaaga ttttgtgtgg caataaaaat tgagtttttg taaattcaat 2700
tgaaatatat taaagttgca tgttataaga tttatcttta tttcactagt taatataaat 2760
tttggattca cgtataaata aaagtattgt taagag                          2796
```

<210> 29
<211> 1289
<212> DNA
<213> Artificial Sequence

```
<220>
<223> Description of Artificial Sequence:Arabidopsis
      P46421

<400> 29
aagtcaaggt acacatgctc cagggataag gcaaggttag gaattaggac acatctccac 60
ttactaaaaa agagataaaa aaaaattgta tagggaacgt tataaatatg ttgtaaagtc 120
aacatctgtt tccttctaga ctcttcgcat ttacatcaca ctgccgacca tataaaacgg 180
caaagttcgt cgtcgtttta tcacaagacc atcaacacca taaggctata aatccaagct 240
aaaaggtagt gattaactcc acaaaaccag aaaaactaca tttctaacat atagaagaaa 300
cagagaaaaa gagagagaga cccctaatgg ctgagaaaga agaagtgaag cttttgggga 360
tatgggcgag cccttttagc cgtcgggtcg agatggctct caaactcaaa ggcataccgt 420
acgagtacgt ggaagagata ctggagaaca aaagcccttt gcttcttgct cttaacccta 480
ttcacaagaa agtccctgtt cttgtccaca atggtaaaac cattctcgag tctcatgtga 540
ttcttgaata catcgatgag acttggccac aaaatccaat tctccctcaa gatccttatg 600
aaagatccaa agctcgtttc tttgctaaac tcgtcgatga acaggtaatt gaattggttc 660
aaaattgcat gtcaaataat aaacaattgg ttctgctttg ttaatttatc aaacaagtaa 720
ttttctatta acattagcga ttatatgtct ctgtcattgt agattatgaa cgtggggttt 780
atatcaatgg caagagcaga cgagaaagga agagaagttt tagccgagca ggtaagagaa 840
ctgattatgt atctcgagaa agaacttgtc ggaaaagatt acttcggagg caagactgtc 900
ggattcttgg actttgtcgc cggaagttta attccgtttt gtttggagag aggttgggaa 960
ggaataggat tggaagtgat tacagaggag aagtttccag agttcaagag atgggttagg 1020
aatttggaga aggttgagat tgttaaagat tgtgttccac aagagagga acatgtagaa 1080
cacatgaact atatggcaga gagagtgaga tcttcttaag aaaacaaatc atgtttagtt 1140
cttgatcatg caatgtttgt atggttatgt tgttgtttat tttattgaat atctttgtat 1200
gttgtgtggt tgagaagtga ggttttatca tcatctctca cgttatctta tttggtccca 1260
gccactattt agaattaatg gtaaagctt                                    1289
```

```
<210> 30
<211> 1339
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Arabidopsis
      Genomic sequence

<400> 30
gaattaattc ttgacgaagc atggggttgt cttcagaaaa tgaatggatc aagtcaaggt 60
acacatgctc cagggataag gcaaggttag gaattaggac acatctccac ttactaaaaa 120
agagataaaa aaaaattgta tagggaacgt tataaatatg ttgtaaagtc aacatctgtt 180
tccttctaga ctcttcgcat ttacatcaca ctgccgacca tataaaacgg caaagttcgt 240
cgtcgtttta tcacaagacc atcaacacca taaggctata aatccaagct aaaaggtagt 300
```
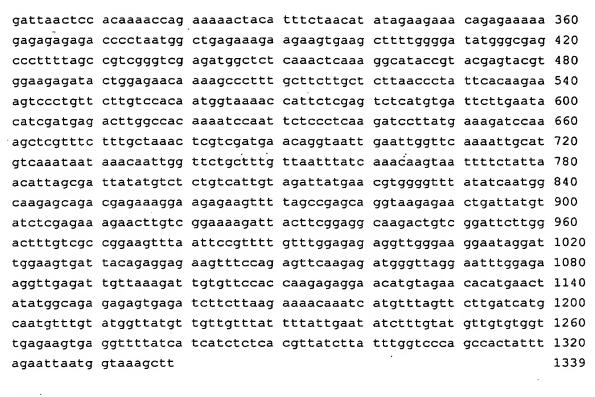
```
gattaactcc acaaaaccag aaaaactaca tttctaacat atagaagaaa cagagaaaaa 360
gagagagaga cccctaatgg ctgagaaaga agaagtgaag cttttgggga tatgggcgag 420
ccctttttagc cgtcgggtcg agatggctct caaactcaaa ggcataccgt acgagtacgt 480
ggaagagata ctggagaaca aaagcccttt gcttcttgct cttaacccta ttcacaagaa 540
agtccctgtt cttgtccaca atggtaaaac cattctcgag tctcatgtga ttcttgaata 600
catcgatgag acttggccac aaaatccaat tctccctcaa gatccttatg aaagatccaa 660
agctcgtttc tttgctaaac tcgtcgatga acaggtaatt gaattggttc aaaattgcat 720
gtcaaataat aaacaattgg ttctgctttg ttaatttatc aaacaagtaa ttttctatta 780
acattagcga ttatatgtct ctgtcattgt agattatgaa cgtggggttt atatcaatgg 840
caagagcaga cgagaaagga agagaagttt tagccgagca ggtaagagaa ctgattatgt 900
atctcgagaa agaacttgtc ggaaaagatt acttcggagg caagactgtc ggattcttgg 960
actttgtcgc cggaagttta attccgtttt gtttggagag aggttgggaa ggaataggat 1020
tggaagtgat tacagaggag aagtttccag agttcaagag atgggttagg aatttggaga 1080
aggttgagat tgttaaagat tgtgttccac caagagagga acatgtagaa cacatgaact 1140
atatggcaga gagagtgaga tcttcttaag aaaacaaatc atgtttagtt cttgatcatg 1200
caatgtttgt atggttatgt tgttgtttat tttattgaat atctttgtat gttgtgtggt 1260
tgagaagtga ggtttttatca tcatctctca cgttatctta tttggtccca gccactattt 1320
agaattaatg gtaaagctt                                           1339
```

<210> 31
<211> 968
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Papaya AJ000923

<400> 31
```
tagaactagt ggatcccccg ggctgcagga attcggcacg agagatttta tcttttagga 60
gctccgtttt acaacaatgg cggacgaggt tgttctcttg gatttctggc caagcccttt 120
tggaatgaga atcagaatcg ctttagccga gaagggtatt cactacgagt acaaggaaga 180
gaatctgaga aacaagagtc ccttactcct gcagatgaac ccggtacaca agaaaatccc 240
ggttctcatc cacaatggta aacccatctg tgagtctttg atccagattc agtacataga 300
tgaggtatgg agcgacaagg ctcctctgct tccctctgat ccttatcaga gagctcaagc 360
caggttctgg gctgactatg ttgacaagaa gatgtatgaa gctgggagga gagtttggac 420
gactaaaggg gaagaacagg aggggccaa gaaagagttc atagaaatct tgaagacttt 480
ggagggagaa cttggggaga gccttatttt tggtggggaa gtttttgggt atgtggattt 540
gacttttatc ccattctaca cttggttcag tgtgtatgaa agttttggga agatgagcat 600
agaggcagaa tgccccaagt tgtttagttg ggtgaaaagg tgtttggaga aggagagtgt 660
ttcaaaatct ctgcctgatc aagataaggt atacggcttc gttttggaac tcaggaaggc 720
tcttgggatt tgagtttttt gagagacttc aaaatccttg ttccatttcc attaggttc 780
gtcctccaag tattgattaa aaaaggttct ggatcaacta ctttatttgt ctagtctttt 840
actgttgtat tggaataaag gggtgtcctt ttgtggatta ggtgagattt ctatcaatat 900
```

```
tgtggtgacg tcaatttctt gtgtgttgta ggcaaatcat atttgaataa aatctttctt 960
tcatatgt                                                          968
```

<210> 32
<211> 1040
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Spruce AF051214

<400> 32

```
gaaaagacag atacatagaa agttagagac agttacaata cattttcaga gcaatcgcga 60
tggaggcctg tggagaagag gcgcaagtga agctgttggg tgggaatata agtccctttg 120
tgctgcgggt ccgtatagca cttgctctta aagggatcga ttacgagttc atcgaagaga 180
acatgcaaaa taagagccat ctgctgctgc aatcgaaccc tgttaacaag aagattccag 240
tgctcatcca caatggaaag cctgtttgtg agtccatgat tattgtgcag tacatagacg 300
aggcatggga cacgaaggcg ccagttctaa tgcccaaaga tccttatgac cgagccattg 360
cccgcttctg ggctgccttt gtagacgata agctgctgcc atgccttcgg ggagttttca 420
agggccaggg agagcagcaa cagaaagcgt tggaagaatc gggggcaagc tttctttttac 480
tggaggaggc tctgcgaacg agccactgct tctcgggaaa accgtatttc ggaggagatg 540
agatcggctt tcttgacatc gcattgggtg gtatgttagc atttgtcaaa gccctcgaga 600
aggttactaa tttagttttta atagaccagg agaagatgcc gctgttaagc acatggatga 660
atcgattctg tgaggccgat ggagtgaaag acgttatgcc ggatccggcc aagttgcagg 720
aatttatatc cgccatcaga gtcagattta catcaccacc tgctgccaat tagggggaagc 780
cattcggcca ttaaatggat gttatcgtcc gcattgtttt tggtttttatg ctgtcagttt 840
gaatgttgtt atgctttttg aattgttggt gtttaatggg aataattcta tcgcccaatc 900
tagcaccgtg tgattcgcta tcagttctca ccgtgttcca tgtaacttcg atttcatgat 960
tttgggagat agaacaaaaa ttcatggaaa tgtgtgttag tgttttatat ttgaaaaggg 1020
ttggatttgc agagaatgga                                            1040
```

<210> 33
<211> 902
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Wheat AF004358

<400> 33

```
ggcacgaggc aagcacaagc agctaaagca atctcagtgg tcttcaaaac acacacacac 60
acactgacac acatcgatcg aggtagttag agatggccgg aggagatgac ctgaagctgc 120
tcggcgcatg gccaagccca tttgttacca gggtgaagct ggcgctcgcc ctgaagggcc 180
```

```
tgagctacga ggacgtggag gaggacctgt acaagaagag tgagcttctc ctcaagtcca 240
acccggtgca caagaagata cccgtgctca tccacaacgg agccccggtc tgcgagtcca 300
tgatcattct ccagtacatc gacgaagtgt tcgccagcac cggcccgtcc cttcttccag 360
cggaccccta cgagcgcgcc attgctcgct tctgggtggc ttacgttgac gacaagctgg 420
tagccccatg gaggcagtgg ttgaggggca agacagagga ggagaaatcc gagggaaaga 480
agcaggcgtt cgccgcggtg ggggtcctcg aagggcccct gagggagtgc tccaagggag 540
ggggcttctt cggtggcgac ggcgtcgggc tcgtcgacgt tgcgctggga ggcgtgctgt 600
cgtggatgaa ggtgaccgag gcgctgtctg gtgacaagat tttcgacgcc gccaagactc 660
cgctcctggc cgcatgggtg gagcgcttca ttgagctcga cgcggccaag gccgccctgc 720
cggacgtggg caggctgctt gagtttgcca aggcacgaga ggctgccgct gcagcgtcca 780
agtgagccgc cagcacatat ccagaataat taaaatttgt tattttaaat gttgtttgtt 840
cggctgcttg atgtaataat gtagtaactg atgtcgtcca tttaaaaaaa aaaaaaaaaa 900
aa 902
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```
<210> 34
<211> 1127
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Spruce AF051238

<400> 34
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gacggaggct tgtggagaaa aggggcaagt gcagctgtta ggtgggagtc tgagttcctt 120
cgtgctgcgg gttcgcatag cacttgctct taaaggcatc gattacgagt tcatcgaaga 180
gaacatgcaa aataggagcc agctgctgct gcaatcaaac cctgttcaca ggaagattcc 240
agtgcttatc cacaatggaa agcccgtttg tgaatccatg attattgtgc agtacatcga 300
tgaggcatgg gacactaagg cacccaatct tatgcccaaa gatccatatg acctagccat 360
tgcccgcttc tgggctgcct ttgtagacga taagctcgtt ccatgtatgc ggagagtttt 420
cgctggccat ggcgagcagc tacagaaaga agcggaagat ctggttacaa actttcattt 480
gatagaggaa gctctgcgaa ccaacagctg cttctcagga aaagcgtatt ttggagggga 540
taagataggc ttgcttgaca tcgcattggg tggtatgttg gcggttctca aaggcctcga 600
gaaggctacc gataccgtta aatagatcc ggagaagatg ccgttgctga gcgcatggat 660
ggaccgattt tgtcaatcca atggagtgaa agaagtaatg cccgatccgg ccaagcagct 720
ggaatctcta tcagctagga gagccagact tgcatcacct gctggcaatt agggcaagcc 780
atgtcggcct tataaactga ggatagacag atggattata aacttattat tcgtagtact 840
tgtcctttta ttcatgtggt cagcttcagc gttttaattc ttgctgtttt atgtgaataa 900
gtctgaataa tgtttgggtg aatctcgcct gtactatagc tggcattcac ctgtttattg 960
tacgctgatt tagtttgaac aagttttggt gaatctcccc tgtactgaag ctggcattcc 1020
cctgttcaat gtgcgctgat ttagtttgaa taagtttttg atgaatctcg cttgtactgt 1080
agctatgtgc gatgattttt aatgccatag aaacgagaat gaaatgc 1127
```

<210> 35
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 35
gagagaggat cctcgagttt tttttttttt tttt   34

<210> 36
<211> 234
<212> PRT
<213> Glycine max

<400> 36
Met Ser Lys Ser Glu Asp Leu Lys Leu Leu Gly Gly Trp Phe Ser Pro
 1   5   10   15

Phe Ala Leu Arg Val Gln Ile Ala Leu Asn Leu Lys Gly Leu Glu Tyr
            20   25   30

Glu Val Val Glu Glu Thr Leu Asn Pro Lys Ser Asp Leu Leu Leu Lys
        35   40   45

Ser Asn Pro Val His Lys Lys Ile Pro Val Phe Phe His Gly Asp Lys
    50   55   60

Val Ile Cys Glu Ser Ala Ile Ile Val Glu Tyr Ile Asp Glu Ala Trp
65   70   75   80

Thr Asn Val Pro Ser Ile Leu Pro Gln Asn Ala Tyr Asp Arg Ala Asn
                85   90   95

Ala Arg Phe Trp Phe Ala Tyr Ile Asp Glu Lys Trp Phe Thr Ser Leu
            100   105   110

Arg Ser Val Leu Val Ala Glu Asp Asp Glu Ala Lys Lys Pro His Phe
        115   120   125

Glu Gln Ala Glu Glu Gly Leu Glu Arg Leu Glu Glu Val Phe Asn Lys
    130   135   140

```
Tyr Ser Glu Gly Lys Ala Tyr Phe Gly Gly Asp Ser Ile Gly Phe Ile
145             150             155                 160

Asp Ile Gly Phe Gly Ser Phe Leu Ser Trp Met Arg Val Ile Glu Glu
                165             170             175

Met Ser Gly Arg Lys Leu Leu Asp Glu Lys Lys His Pro Gly Leu Thr
            180             185             190

Gln Trp Ala Glu Thr Phe Ala Ala Asp Pro Ala Val Lys Gly Ile Leu
            195             200             205

Pro Glu Thr Asp Lys Leu Val Glu Phe Ala Lys Ile Leu Gln Leu Lys
    210             215             220

Trp Thr Ala Ala Ala Ala Ala Ala Lys
225             230
```

<210> 37
<211> 222
<212> PRT
<213> Glycine max

<400> 37
```
Met Ala Ser Ser Gln Glu Glu Val Thr Leu Leu Gly Val Val Gly Ser
1               5               10                  15

Pro Phe Leu His Arg Val Gln Ile Ala Leu Lys Leu Lys Gly Val Glu
                20              25              30

Tyr Lys Tyr Leu Glu Asp Asp Leu Asn Asn Lys Ser Asp Leu Leu Leu
            35              40              45

Lys Tyr Asn Pro Val Tyr Lys Met Ile Pro Val Leu Val His Asn Glu
    50              55              60

Lys Pro Ile Ser Glu Ser Leu Val Ile Val Glu Tyr Ile Asp Asp Thr
65              70              75              80

Trp Lys Asn Asn Pro Ile Leu Pro Ser Asp Pro Tyr Gln Arg Ala Leu
                85              90              95
```

```
Ala Arg Phe Trp Ala Lys Phe Ile Asp Asp Lys Cys Val Val Pro Ala
            100                 105                 110

Trp Lys Ser Ala Phe Met Thr Asp Glu Lys Glu Lys Glu Lys Ala Lys
            115                 120                 125

Glu Glu Leu Phe Glu Ala Leu Ser Phe Leu Glu Asn Glu Leu Lys Gly
        130                 135                 140

Lys Phe Phe Gly Gly Glu Glu Phe Gly Phe Val Asp Ile Ala Ala Val
145                 150                 155                 160

Leu Ile Pro Ile Ile Gln Glu Ile Ala Gly Leu Gln Leu Phe Thr Ser
                165                 170                 175

Glu Lys Phe Pro Lys Leu Ser Lys Trp Ser Gln Asp Phe His Asn His
            180                 185                 190

Pro Val Val Asn Glu Val Met Pro Pro Lys Asp Gln Leu Phe Ala Tyr
        195                 200                 205

Phe Lys Ala Arg Ala Gln Ser Phe Val Ala Lys Arg Lys Asn
    210                 215                 220
```

<210> 38
<211> 895
<212> DNA
<213> Glycine max

<400> 38

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cacaactttg cccccttgta aaacttctta ttgtgatgtc taaaagcgaa gacttgaagc   60
ttttgggagg ctggttcagc ccatttgccc tgagggtgca gattgccctt aacctcaagg  120
gtctagaata tgaggttgtt gaagagacct tgaatcccaa aagtgacctg cttcttaagt  180
ccaaccctgt gcacaagaaa atcccagttt tcttccatgg agataaagtc atttgtgaat  240
ctgcaatcat agttgagtac attgatgagg cttggactaa tgttccctcc atccttccac  300
aaaatgctta tgatcgtgct aatgctcgat tttggtttgc ctacattgat gagaagtggt  360
ttacgtcctt gagaagtgtt ctagtggctg aagatgatga ggcaaagaag ccacactttg  420
agcaagcaga agaagggctt gagaggttgg aagaagtgtt caacaagtac agtgaaggga  480
aggcctattt cggaggagat agcattggat tcattgacat ggttttgggg agcttcttga  540
gttggatgag agtcatagag gagatgagtg aagaaaatt gcttgatgaa aagaagcacc  600
ctggtttgac ccaatgggct gaaacgtttg ctgctgatcc tgctgtgaag ggcattcttc  660
```

```
cagagactga taagcttgtt gagtttgcca agattcttca gctaaaatgg actgctgcag 720
cagctgcagc tgcaaagtaa atggaatcaa attaattgcg agagtatttt caaaattgtt 780
gtccaagttg tttttatctc aggctatgtt gttgcaactt tatttatttta aaagttattt 840
taaatttaaa atgtaaaata ttaagaaagt ttaagtaagt tagttgaaaa atttt      895
```

```
<210> 39
<211> 895
<212> DNA
<213> Glycine max
```

```
<400> 39
aaataagtat cttcgtagtt gcataagtca agagaagaag tgaagtggct gcaatggctt 60
caagtcagga agaggtgacc ctttgggag ttgtgggaag cccatttcta cacagggttc 120
agattgctct caagttgaag ggagttgaat acaaatattt ggaagacgat ttgaacaaca 180
agagtgattt gctcctcaag tataacccag tttacaaaat gattccagtg cttgttcaca 240
atgagaagcc catttcagag tcccttgtga ttgttgagta cattgatgac acatggaaaa 300
acaatcccat cttgccttct gatccctacc aaagagcctt ggctcgtttc tgggctaagt 360
tcattgatga caagtgtgtg gttccagcat ggaaatctgc ttttatgact gatgagaaag 420
agaaagagaa ggctaaagaa gagttatttg aggctctgag ttttcttgag aatgagttga 480
agggcaagtt ttttggtgga gaggagtttg gctttgtgga tattgctgct gtgttaatac 540
ctataattca agagatagca gggttgcaat tgttcacaag tgagaaattc ccaaagctct 600
ctaaatggag ccaagacttt cacaaccatc cagttgtcaa cgaagttatg cctcctaagg 660
atcaactttt tgcctatttc aaggctcggg ctcaaagctt cgttgctaaa agaaagaatt 720
aatatagtga gactcagaat ttccatcgag gtttcagtat tgtatgaaat gaaagctact 780
tgtctatgtt tcgttattgc ggttgtattt tcatttttca atgaattatg tgatatagga 840
tttctccatg tcaaaagata gttcaattca atcaataaaa taaacgaatg agcgg       895
```

```
<210> 40
<211> 977
<212> DNA
<213> Glycine max
```

```
<400> 40
ctgattcccg gctcaataag aggagaatac cttaggaatc cataagaaac attaattcac 60
cactatagtt gttctgttag aagtgctaca acaacaatg gctgctaatc aggaagatgt 120
gaagcttttg ggagctactg gaagcccatt tgtgtgcagg gttcagattg ccctcaagtt 180
gaagggagtt caatacaaat ttttggaaga aaatttgagg aacaagagtg aactgcttct 240
caaatccaac ccagttcaca agaaggttcc agtgtttatt cacaatgaga gcccatagc 300
agagtctctt gtgattgttg aatacattga tgagacatgg aagaacaacc ccatcttgcc 360
ttctgatcct taccaaagag ccttggctcg tttctggtcc aaattcattg atgacaaggt 420
tgtgggtgct gcatggaaat atatttatac tgttgatgag aaagagcgtg agaagaatgt 480
tgaagagtca tatgaggctc tgcagtttct tgagaatgag ctgaaggaca agaagttttt 540
tggaggagag gaaattgggt tggtagatat tgctgctgtc ttcatagcat tttggatccc 600
```

```
tataattcaa gaagtattgg gtttgaagtt attcacaagt gagaaatttc ctaagctcta 660
caaatggagc caagagttca tcaaccaccc tgttgtcaaa caagtccttc ctcctagaga 720
tcaacttttt gccttctaca aagcctgcca tgaaagtctt tctgcttcaa aatagactta 780
tttaaggata gttgtgtgaa ctactggtct ctcatttgtg agttattgca gtttgaattt 840
catgtcaatt tggtttttata tgtaatttag taacctggga tatctcccat ggagaaaata 900
atccttggat cttgtttcca ttttggccat ttcagttaat aaagaaattc attttttcca 960
aaaaaaaaaa aaaaaaa                                                977
```

```
<210> 41
<211> 1006
<212> DNA
<213> Glycine max
```
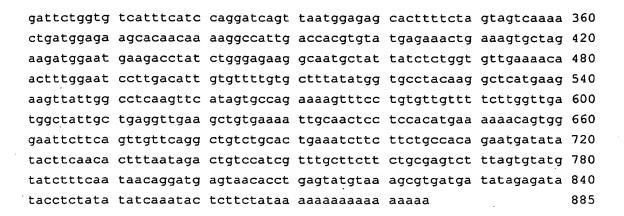
```
<400> 41
atagtgctgc aatggcttca agtcaggagg aggtgaccct tttgggagct actggaagcc 60
catttgtgtg cagggttcat attgccctca agttgaaggg agttcaatac aaatatgtcg 120
aagaaaattt gaggaacaag agtgaactgc ttctcaaatc caacccagtt cacaagaagg 180
ttccagtgtt tattcacaat gagaagccca tagcagagtc tcttgtgatt gttgaataca 240
ttgatgagac atggaagaac aaccccatct tgccttctga tccttaccaa agagccttgg 300
ctcgtttctg gtccaaattc attgatgata aggttttttgg tgctgcatgg aaatccgttt 360
tcacagctga tgagaaagag cgtgagaaga atgttgagga agcaattgag ctctgcagtt 420
tcttgagaat gagataaagg acaagaagtt ctttggagga gaggagattg ggttggtaga 480
tattgctgct gtctacatag catttgggt ccctatggtt caagaaattg cagggttgga 540
gttattcaca agtgagaaat ttcctaagct ccacaattgg agccaagaat ttttgaacca 600
tccaattgtc aaagaaagtc tgcccctag agatcctgtt ttctccttt tcaagggtct 660
ctatgaaagc cttttggtt caaaatagat ttgatgatgt ggtgtgagac ttagtatttc 720
taagaattat gtgtttgtta aaggcttcta tgaaagcctc actgcttcaa aatagattca 780
tgtatgtgag actcagaatc tctggggaaa attgtgtgtg gtgtggacta cttgtttgt 840
ttgtcattga gctatatcgc tgttaattag gattttgttt caaaatgatg cttataagtt 900
gtaatctagg atttctccct ttgaaatcct aggttgttct tgacatttgc tatttcaaag 960
aataaatata tagcatcttt ctatttctca aaaaaaaaa aaaaaa           1006
```

```
<210> 42
<211> 885
<212> DNA
<213> Glycine max
```

```
<400> 42
ccatagcaat ggcagagcaa gacaaggtga tcctacacgg gatgtgggcc agcccttatg 60
ccaagagggt ggaattggcc cttaatttta agggcatacc ctatgagtat gttgaagaag 120
acttgagaaa taagagtgat ttgcttctaa agtacaaccc tgttcacaag aaggttcctg 180
tacttgttca taatggaaag gccattgctg aatccatggt gatccttgag tatattgatg 240
aaacatggaa agatggtcct aaactgcttc caagtgattc ttacaaacga gcccaagctc 300
```

```
gattctggtg tcatttcatc caggatcagt taatggagag cacttttcta gtagtcaaaa 360
ctgatggaga agcacaacaa aaggccattg accacgtgta tgagaaactg aaagtgctag 420
aagatggaat gaagacctat ctgggagaag gcaatgctat tatctctggt gttgaaaaca 480
actttggaat ccttgacatt gtgtttttgtg ctttatatgg tgcctacaag gctcatgaag 540
aagttattgg cctcaagttc atagtgccag aaaagtttcc tgtgttgttt tcttggttga 600
tggctattgc tgaggttgaa gctgtgaaaa ttgcaactcc tccacatgaa aaaacagtgg 660
gaattcttca gttgttcagg ctgtctgcac tgaaatcttc ttctgccaca gaatgatata 720
tacttcaaca ctttaataga ctgtccatcg tttgcttctt ctgcgagtct ttagtgtatg 780
tatctttcaa taacaggatg agtaacacct gagtatgtaa agcgtgatga tatagagata 840
tacctctata tatcaaatac tcttctataa aaaaaaaaa aaaaa              885
```

```
<210> 43
<211> 991
<212> DNA
<213> Artificial Sequence
```

```
<400> 43
ctcgtgccgt ttctataaag gccaaactca caaaccacac cctaacaaat tcatcttatt 60
ttgcaacaca attcaatttt gagcacttac caacaccact tccaatggct tcatatcatg 120
aagaagaagt gaggctattg ggcaagtggg ccagcccatt tagcaacaga gtagaccttg 180
ctctcaagct caagggtgtt ccctacaaat actccgagga agatcttgct aacaagagtg 240
ctgatcttct caagtacaac cccgttcaca agaaggttcc ggttttggtc cacaatggga 300
acccattgcc cgagtcactc atcattgttg aatacataga tgagacgtgg aaaaataacc 360
cactattgcc tcaagaccca tatgaaagag ccttggctcg ttttttggtct aagaccttag 420
atgacaagat cttgccagct atatggaatg cttgctggag tgacgagaat gggcgtgaga 480
aagcagtgga ggaagccttg gaagcattga aaatcctaca ggaaacactg aaagacaaga 540
aattctttgg aggagagagc ataggattgg tagatattgc tgccaatttc attgggtatt 600
gggttgccat attgcaagag attgcagggt tggagttgct caccattgag aaatttccca 660
agttatataa ttggagtcaa gactttatca accaccctgt gatcaaggag ggtctgcctc 720
ctagagatga attgtttgct ttcttcaaag cttctgctaa aaagtagaac cattttagag 780
gtaggattca taataagtta gtatgatttt gttgggaaac aattatcttg ttgtgagcaa 840
aggattgttc tgttttaaat ttaattgact gtgatttggt tgggtattgg ctattttaat 900
tttaactaaa aaagtgttc agttttaaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa 960
aaaaaaaaa aaaaaaaaa aaaaaaaaa a                           991
```